# New species of *Commersonia* J.R.Forst. & G.Forst. (Sterculiaceae) from Queensland

## G.P. Guymer

#### **Summary**

Guymer, G.P. (2006). New species of *Commersonia* J.R.Forst. & G.Forst. (Sterculiaceae) from Queensland. *Austrobaileya* 7(2): 365–372. The new species *Commersonia perkinsiana* Guymer, *C. inglewoodensis* Guymer and *C. macrostipulata* Guymer are described and illustrated, and a key to Queensland species of *Commersonia* subg. *Commersonia* is provided. Notes on distribution, habitat and conservation status are provided for the new species. The new combination *Commersonia procumbens* (Maiden & Betche) Guymer is made for *Rulingia procumbens* Maiden & Betche.

Key Words: Sterculiaceae, Commersonia inglewoodensis, Commersonia macrostipulata, Commersonia perkinsiana, Commersonia procumbens, new species, new combination, taxonomy, Australian flora, Queensland flora, identification key

G.P. Guymer, Queensland Herbarium, Environmental Protection Agency, Brisbane Botanic Gardens, Mt Coot-tha Road, Toowong, Queensland 4066, Australia. Email: Gordon.Guymer@epa.qld.gov.au

### Introduction

*Commersonia* J.R.Forst. & G.Forst. (including *Rulingia* R.Br.) is a genus of more than 60 species of trees or shrubs that occurs in SE Asia, Madagascar, Malesia, Melanesia and Australia (Guymer 2005; Wilkins & Whitlock 2005). The new species described in this paper are endemic to Queensland. Two of these species (*Commersonia inglewoodensis* and *C. perkinsiana*) have only recently been collected and identified and require conservation action.

### Materials and methods

The study is based upon the examination of herbarium material at BM, BRI, CANB, K, L, MEL, NSW and P, and field collections and observations by the author. The Herbarium acronyms follow Holmgren *et al.* (1990). All specimens cited have been seen by the author.

Measurements are sometimes abbreviated with  $\times$  indicating length  $\times$  width. Descriptions of the flowers were prepared from material preserved in spirit. Common abbreviations in the specimen descriptions and citations are dbh (diameter at breast height), L.A. (Logging Area), N.P. (National Park), S.F. (State Forest) and T.R. (Timber Reserve). Recommendations on the conservation status of species is based on the criteria of the IUCN (2001). Vegetation terminology for Queensland follows that of the *Vegetation Management Act 1999*, its associated regulations, and the regional ecosystem framework (www.epa.qld. gov.au/REDD). The abbreviation RE refers to regional ecosystem.

### Taxonomy

**Commersonia perkinsiana** Guymer, **species nov.** affinis *C. pedleyi* sed ab ea foliis marginibus serratis (in illa lobatis), inflorescentiis 3–4-floris non 7–10-floris, minoribus pedunculis (longitudine 1.8–2.5 mm non 4–5 mm) necnon pedicellis (longitudine 0.3–0.6 mm non 1–3(–9) mm) differt.

**Typus:** Queensland. PORT CURTIS DISTRICT: Stockyard Point, Byfield Conservation Park, April 2005, *B.J.Plumb s.n.* (holo: BRI; iso: BRI).

Small erect shrubs, suckering from rhizomes, to 10 cm high; branchlets pubescent (trichomes 0.3-0.8 mm diameter), glabrescent. Leaves grey-green or slightly glaucous, white below; blades oblong-lanceolate or lanceolate, 2–4  $\times$  0.6–1.1 cm; margins slightly serrate, teeth 5–11 pairs, to 0.7 mm long; bases cuneate or truncate; apices rounded or obtuse; pubescent above (stellate trichomes mid-dense, 0.3–0.7 mm diameter), velutinous below (stellate trichomes 0.3–0.9 mm diameter); 5-veined at

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366

the base, lateral veins slightly impressed above, raised below, 7 or 8 pairs; petioles 2–5 mm long, stellate-pubescent. Stipules triangular,  $2-3 \times 0.2-0.3$  mm, stellate-pubescent. Inflorescences 3 or 4-flowered, 8–10 mm long; peduncles 1.8–2.5 mm long, stellatepubescent; bracts narrowly triangular, 1.6–2  $\times c$ . 0.1 mm, stellate-pubescent. Flowers 7–8.5 mm diameter, pale magenta; pedicels 0.3–0.6 mm long. Calyces 5–5.5 mm long, stellatepubescent; lobes ovate, obtuse or acute,  $2-3.5 \times 3.4-3.8$  mm. Petals 3-lobed, 3.4-4 mm long; central lobe ovate, obtuse,  $2-2.5 \times 0.5-0.8$  mm; lateral lobes rounded,  $0.8-0.9 \times 0.8-0.9$  mm. Staminal tube 1.5-1.8 mm long; central staminodes triangular, caudate, 2.8-3 mm long, 0.9-1 mm wide; lateral staminodes present or absent, corniculate, erect, smooth, 0.3-0.4 mm long, glabrous. Ovary ovoid, slightly 5-lobed, 1.3-1.4 mm long, 1-1.2 mm diameter; ovules 9 per loculus; styles free at base, coherent above, 0.8-0.9 mm long; stigmas free, clavate, 0.18-0.2 mm diameter. Capsules and seeds not known. Fig. 1.



**Fig. 1.** *Commersonia perkinsiana.* A. flowering branchlet  $\times$  2. B. flower from above  $\times$  8. All from *Plumb s.n.* (BRI). Del. W. Smith.

Guymer, New species of Commersonia

*Additional specimen examined*: Queensland. PORT CURTIS DISTRICT. Stockyard Point, Byfield, 22°49'S, 150°48'E, Dec 1996, *Plumb JP29* (BRI).

Distribution and habitat: Commersonia perkinsiana has only been recorded from one population at Stockyard Point, NE of Rockhampton, Oueensland. It occurs Themeda triandra dominated tussock in grassland (RE 8.12.13; Batianoff & McDonald (1980) Map Unit 26) on an exposed headland on shallowly rocky soils derived from igneous rocks. Associated species include Acacia julifera, A. juncifolia, Comesperma oblongatum, Chrysocephalum apiculatum, Dodonaea lanceolata var. subsessilifolia, Grevillea banksii, Hardenbergia violacea, Helichrysum lanuginosum and Xerochrysum bracteatum.

**Phenology:** Flowers have been recorded for April and December. Fruits and seeds are not known.

*Affinities:* Commersonia perkinsiana is allied to *C. pedleyi* but differs from this species by its slightly serrate leaf margins (lobed in the latter), 3-4-flowered inflorescences (not 7–10-flowered), shorter peduncles (1.8-2.5 mm compared to 4-5 mm long) and pedicels (0.3-0.6 mm not 1-3(-9) mm long), and ovate central petal lobes 2-2.5 mm long (not linear-lanceolate and 2.7-4.5 mm long). The new species is also markedly geographically disjunct and occurs in different habitat to the earlier named species (Guymer 2005).

*Conservation status*: The species is known only from a coastal headland at Stockyard Point in Byfield Conservation Park. Further survey work is required to determine the species' distribution, area of occupancy and number of populations. A conservation status of Data Deficient is recommended until further information is obtained.

*Etymology*: The species is named for David Perkins (1945–2006) who spent all his working life furthering the conservation of Queensland's coastal environment and Marine Parks, in the Queensland Government departments of Fisheries, Co-ordinator General's, Marine Parks and Environmental Protection Agency. **Commersonia macrostipulata** Guymer, **species nov.** affinis *C. bartramiae* sed ab ea stipulis ovatis vel ovati-lanceolatis, et foliis marginibus leviter serratis et tomento abaxiali subtiliter velutino differt.

**Typus:** Queensland. COOK DISTRICT: Rex Range, bottom lookout, 2.6 km by road N of Nine Mile Store, Julatten–Mossman road, 19 November 2005, *D.Halford Q8843 & R.Jensen* (holo: BRI; iso: BRI, K, MEL, NSW).

*Commersonia* sp. (Kuranda K.Williams 211) (Guymer 2002)

Trees 5–10 m high, occasionally shrubs to 2 m high, rhizomatous, dbh to 20 cm; bark smooth, grey; branchlets stellate-pubescent (trichomes 0.15–0.3 mm diameter), glabrescent. Leaves green above, white below; blades ovate or ovate-lanceolate,  $9-19 \times (4-) 6-10$  (-11) cm; margins slightly serrate, callosities or teeth 20-30 pairs, 0.1-0.5 (-1) mm long; bases cordate or truncate; apices acute or acuminate; sparsely pubescent to glabrescent above (stellate trichomes 0.1-0.3 mm diameter, and glandular trichomes to 0.1 mm long), except for along midrib and lateral veins, finely velutinous below (stellate trichomes 0.1-0.3 mm diameter); lateral veins 5-7, 5veined from the base, first lateral vein (1.5-)2-4 (-5.5) cm from base, midrib and lateral veins slightly impressed above, raised below, tertiary veins slightly raised above and below; petioles 8–22 mm long, stellate-pubescent. Stipules ovate or ovate-lanceolate, entire or serrate, caducous,  $3.5-7.5 \times 1.6-4$  mm, teeth 2-4, stellate-puberulent. Inflorescences 2-8 cm long, 50-200-flowered; peduncles 5–19 mm long; axes stellate-pubescent; bracts narrowly triangular, caducous,  $0.6-4 \times 0.2-$ 0.6 mm, stellate-pubescent. Flowers 5-6.5 mm diameter, cream to white; pedicels 3.5-5mm long, stellate-puberulent. Calyces 3-3.5 mm long, puberulent; lobes triangular-ovate,  $2-2.5 \times 1.8-2.2$  mm. Petals 3-3.2 mm long, puberulent except for apex, base and margins; central lobes linear, concave, erect, 2.3-2.7  $\times$  0.35–0.45 mm; lateral lobes enclosing the stamen, rounded,  $0.3-0.4 \times 0.5-0.6$  mm. Staminal tube 0.3-0.4 mm long; central staminodes triangular,  $1.2-2 \times 0.5-0.7$  mm. pubescent outside, glabrous inside except at apex; lateral staminodes filiform, corniculate,  $0.6-0.7 \times 0.1-0.15$  mm, pubescent. Ovary 5-lobed, with rudimentary bristles, 0.9–1.1 mm diameter, ovules 4 per loculus; styles free, coherent at apex, 0.22–0.3 mm long; stigmas connate at base, clavate, 0.08–0.1 mm diameter. Capsules 5-valved, globular or depressed-globular, 2–3 cm diameter, 1.8–2.8 cm high, with dense bristles 8–17 mm long, bristles stellate-pubescent (trichomes 0.4–0.7 mm diameter) with larger caducous stellate trichomes (0.6–1 mm diameter, 7–12-rayed) at apex. Seeds 2–4 per locule, ovoid or oblongovoid, smooth, 2.4–3 × 1.5–2 mm, black or dark brown, matt; strophiole 2–3 mm long, orange or yellow. **Fig. 2.** 

Additional specimens examined: Queensland. COOK DISTRICT: 4 km W of Isabella Falls on Battle Camp road, Nov 1989, Jessup, Guymer & Dillewaard GJD3019 (BRI), lower slopes of Mt Saunders, Aug 1984, Scarth-Johnson 1589A (BRI), top of Mt Hartley, T.R. 165, Jul 1995, Forster PIF17315 & Figg (BRI); 2 km along Creb Track from Ayton road, Dec 1989, Jessup, Guymer & Dillewaard GJD3126 (BRI), Turpentine road, Cooper Creek catchment, Nov 1995, Forster PIF18055, Jago & Spokes (BRI, MEL, QRS); Palm road, off Cape Tribulation road, Oct 1997, Jago 4525 (BRI, DNA), 18 miles [30 km] N of Mossman, Nov 1967, Boyland 376 (BRI), Summit of NW Peak, Snapper Island, Sep 1928, Tandy 504 (BM, BRI), T.R. 55, Dec 1975, Irvine 1714 (BRI, QRS), S.F.R.72, Salisbury, Nov 1983, Hyland 12863 (BRI, QRS), Rex Range, c. 9 km NE of Julatten, Nov 1996, Jessup 874 (BRI); Rex Range, north of Julatten, Feb 2005, Wannan 3865 (BRI, NSW); 500 m from Nine Mile Store towards Julatten, Nov 2005, Halford O8842 & Jensen (BM, BRI, CANB); 2 km SE of The Pinnacle, Sep 1977, Moriarty 2257 (BRI, QRS); 3 miles [5 km] from Kuranda, on highway to Cairns, Oct 1968, Williams 211 (BRI); Mt Lumley, near Cairns, Sep 1978, Jago 80 (BRI), Yarrabah, without date, Michael 642 (BRI); S.F.R. 933, Apr 1968, Hyland 1472RFK (BRI, QRS). NORTH KENNEDY DISTRICT: Tully River Station, Tully, Jun 1965, Bailey s.n. (BRI [AQ081469]).

**Distribution and habitat:** Commersonia macrostipulata is endemic to north-east Queensland and is known from Isabella Falls, north of Cooktown, to Tully in the south, from near sea-level to 800 m. It occurs in a variety of rainforests from simple notophyll



**Fig. 2.** Commersonia macrostipulata. A. twig  $\times$  0.8. B. stem node with stipule  $\times$  8. C. seed showing hilum and strophiole  $\times$  16. A from Jessup, Guymer & Dillewaard GJD3019 (BRI); C from Wannan 3865 (BRI). Del. W. Smith.

#### Guymer, New species of Commersonia

vine forest to complex mesophyll vine forest or on the margins of rainforest communities.

*Phenology*: The species flowers from August to December and fruits have been collected from September to February and in July.

*Affinities:* Commersonia macrostipulata is allied to *C. bartramia* but differs from this species by its ovate to ovate-lanceolate stipules, and leaves with shallowly serrate leaf margins and finely velutinous abaxial tomentum.

*Conservation status*: The species has a distributional range of over 280 km and a number of populations occur in conservation areas. It is not considered to be at risk.

*Etymology*: The epithet is derived from Latin *macro*- (large) and *stipulatus* (with stipules), referring to the conspicuous ovate to ovate-lanceolate stipules that characterise the species.

Commersonia inglewoodensis Guymer, species nov. affinis C. procumbenti sed ab ea inflorescentiis floribus paucioribus (3) adversum 9-15) minoribus (diametro 3-3.5 mm non 5–6.5 mm), brevioribus pedunculis (longitudine 0.3–1 mm adversum 1–2.5 mm) necnon pedicellis (longitudine 0.1–0.2 mm adversum 1-2 mm), et foliis minoribus (1.5-2.5) $\times$  1.1–1.9 cm non 1.7–4  $\times$  1.5–3.1 cm) differt. **Typus:** Queensland. DARLING DOWNS DISTRICT: 2.2 km W of Kooroongarra, Anderson's road, Bringalily State Forest, 26 February 2006, D.A.Halford Q8965 & G.P.Guymer (holo: BRI; iso: AD, BRI, CANB, DNA, K, L, MO, MEL, NE, NSW, PERTH distribuendi).

Prostrate spreading shrubs to 10 cm high, with trailing stems to 90 cm and a taproot, not rhizomatous. Branchlets pubescent (trichomes stellate, 0.1–0.3 mm diameter), glabrescent. Leaves green, paler below; blades broadly ovate to ovate,  $1.5-2.5 \times 1.1-1.9$  cm; margins irregularly serrate, teeth 6–10 pairs, 0.2–1 mm long; bases cordate, oblique; apices obtuse or rounded; sparsely pubescent above (stellate trichomes 0.5-1.25 mm diameter), tomentose below (stellate trichomes 0.75-1.5 mm diameter); veins raised below, impressed above, lateral veins 3–5 pairs; petioles 2–7 mm long, stellate-pubescent. Stipules caducous, narrowly triangular,  $1.6-1.9 \times 0.5-0.6$  mm, stellate-pubescent. Inflorescences 3-flowered triads, 1.5-3 mm long; peduncles 0.3-1 mm long; axes stellate-pubescent (trichomes 0.6-1.2 mm diameter); bracts linear-oblong, 0.8–1  $\times$  0.15–0.2 mm. Flowers 3–3.5 mm diameter, white or cream; pedicels 0.1-0.2 mm long. Calyces 1.8–2.1 mm long, stellate-pubescent outside, pubescent inside (trichomes stellate & glandular); lobes ovate-acute,  $1-1.2 \times 1.2-$ 1.4 mm. Petals 1.4–1.6 mm long; central lobes oblong, obtuse and slightly 2-lobed at apex,  $0.8-0.9 \times 0.2-0.35$  mm; lateral lobes ovate, obtuse,  $0.3-0.35 \times 0.5-0.6$  mm long. Staminal tube 0.3–0.4 mm long; central staminodes triangular,  $0.5-0.6 \times 0.3-0.35$  mm; lateral staminodes absent or present and then only one, filiform, erect, smooth,  $0.3-0.4 \times c$ . 0.08 mm, glabrous. Ovary slightly 5-lobed, with rudimentary bristles, 0.6–0.8 mm diameter, ovules 3 or 4 per loculus; styles free, 0.2–0.3 mm long; stigmas coherent, clavate, 0.06-0.08 mm diameter. Capsules 5-(or 4)-valved, globular or depressed-globular, 6.5–8 mm diameter, 4.8–5.4 mm high, with moderately dense bristles 0.4–1 mm long along sutures, bristles shorter (0.05–0.3 mm long) on faces of capsule, bristles with stellate trichomes 0.2–0.5 mm diameter, with a larger apical stellate trichome (0.4–0.7 mm diameter, 20– 30-rayed). Seeds 3 or 4 per locule, angular, sculptured,  $1.5-2 \times 1.1-1.6$  mm, dark brown to black, matt; strophiole translucent, cristate,  $0.6-1.5 \times 0.3-1.5$  mm, white. Fig. 3.

*Additional specimen examined*: Queensland. DARLING DOWNS DISTRICT: Bringalily State Forest, Wondul Range, c. 17 km N of Inglewood, Nov 2003, *Halford Q8046 & Forster* (BRI).

**Distribution and habitat:** Commersonia inglewoodensis is known from approximately 50 individual plants in State Forest 341, c. 17 km north of Inglewood, southern Queensland. It occurs on a forestry road in a shrubland community on natural scalds on deeply weathered sedimentary rocks. Characteristic genera in association include Acacia, Boronia, Calytrix, Hakea, Babingtonia, Micomyrtus and Triodia (RE 11.7.5). Apart from the single patch of plants observed, no further colonies were located in this shrubland community and the species may be a component of the adjoining Eucalyptus crebra, Callitris



**Fig. 3.** *Commersonia inglewoodensis.* A. flowering & fruiting branchlet  $\times$  4. B. flower from above  $\times$  16. C. flower showing staminodes  $\times$  20. D. internal view of petal  $\times$  24. E. longitudinal section of capsule  $\times$  8. F. capsule bristle  $\times$  40. G. seed with functe and strophiole  $\times$  16. H. seed showing hilum and strophiole  $\times$  16. All from *Halford Q8965 & Guymer* (BRI). Del. W. Smith.

Guymer, New species of Commersonia

*glaucophylla* and *Angophora leiocarpa* woodland or open forest (RE 11.5.1 & RE 11.5.4).

*Phenology*: Flowers have been recorded for February, March and November; fruits have been collected in February and March.

Affinities: Commersonia inglewoodensis is related to C. procumbens from the central western slopes of New South Wales but differs from this species in its 3-flowered inflorescences (in the latter 9–15-flowered), its smaller flowers (3–3.5 mm diameter versus 5–6.5 mm diameter), its shorter peduncles (0.3-1 mm long compared to 1–2.5 mm long) and pedicels (0.1–0.2 mm long not 1–2 mm long), and its smaller leaf blades (1.5–2.5 × 1.1–1.9 cm compared to 1.7–4 × 1.5–3.1 cm) and shorter petioles (2–7 mm long not 12–25 mm long).

*Conservation status: Commersonia inglewoodensis* is conserved in State Forest 341 but its known area of occurrence (20

 $\times$  10 m) and its situation on a forestry road necessitates a conservation status of endangered using the IUCN (2001) criteria. The species has been searched for elsewhere within the State Forest; however, no further plants have been located.

*Etymology*: The species epithet *inglewoodensis* is derived from the name of the township Inglewood in which district this species occurs.

Commersonia procumbens (Maiden & Betche) Guymer, comb. nov.; *Rulingia procumbens* Maiden & Betche, *Proc. Linn. Soc. New South Wales* 23: 18 (1898). Type: New South Wales. Near Dubbo, November 1887, *E. Betche s.n.* (holo: NSW, iso: K).

*Notes*: With relegation of *Rulingia* to the synonymy of *Commersonia*, the above combination is necessary for this species from New South Wales that appears to be closely allied morphologically to *C. inglewoodensis*.

# Key to Queensland species of Commersonia subgenus Commersonia

1	Trees or tall shrubs (2–) 4–15 m high
2	Stipules triangular or lanceolate, $2.5-8 \times 0.5-0.9$ mm. E Qld C. bartramia <i>s.lat</i> . Stipules ovate or ovate-lanceolate, $3.5-7.5 \times 1.6-4$ mm. Wet Tropics, NE Qld
3	Flowers bright yellow; erect shrubs 0.3–0.6 m high. Central Qld <b>C. leichhardtii</b> <i>s.lat.</i> Flowers red, pink or white; prostrate or erect shrubs
4	Flowers red; leaves broadly ovate to ovate-lanceolate, $3.5-7 \times 1.5-5$ cm.  C. reticulata    NE Qld  Second
5	Flowers 14–17 mm diameter. Springsure area, Central Qld
6	Flowers 3–5.5 mm diameter, white or cream, buds sometimes tinged with    pink
7	Leaf margins with 5–7 rounded or obtuse lobes 1–10 mm long. Blackdown Tableland, Central subcoastal, Qld

. inglewoodensis	Leaves broadly ovate to ovate, $1.5-2.5 \times 1.1-1.9$ cm; flowers 3-3.5 mm diameter; peduncles 0.3-1 mm long. S inland Qld	8
C. leiperi	Leaves lanceolate, 1.5–11.5 × 0.4–1.6 cm; flowers 4.5–5.5 mm diameter; peduncles 3–8 mm long. SE Qld	
	Flowers pale magenta; leaf blades oblong-lanceolate to lanceolate, $2-4 \times 0.6-1.1$ cm, margins slightly serrate. Coast, central Old	9
C. perkinsiana	Flowers with pink buds, opening with white petals tinged with pink; leaf	
C. pedlevi	blades linear-lanceolate to lanceolate, sometimes 3-lobed, $2-7 \times 0.4-4$ cm, margins with lobes 1–4 mm long. S inland Old	

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372